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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/698,566	10/27/2000	Hiroshi Osawa	450100-02805	5043

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EXAMINER

CEGIELNIK, URSZULA M

ART UNIT PAPER NUMBER

3712

DATE MAILED: 12/12/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

09/698,566

Applicant(s)

OSAWA ET AL.

Examiner

Urszula M Cegielnik

Art Unit

3712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) 22-32, 36 and 38-43 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 37 is/are allowed.
- 6) ☐ Claim(s) 1-13, 15, 17-19, and 33-35 is/are rejected.
- 7) ☒ Claim(s) 14, 16, 20 and 21 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Applicant's election without traverse of Group I in Paper No. 7 is acknowledged.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 4 and 11, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-7, 10-13, 15, 17-19, and 33-35 are rejected under 35 U.S.C. 102(e) as being anticipated by Allen et al.

Allen et al. disclose a robot and charging system having visible recognition data (reflectors 200) arranged in a predetermined location of the charging station; image pickup means (navigational scanner 44) mounted on the mobile robot (vehicle 1); calculating means for calculating a range and a bearing from the mobile robot to the charging station, based on an image picked up by the image pickup means (col. 33, lines 30-38); and searching means for causing the mobile robot to search for the charging station, based on the calculation result provided by the calculating means as recited in claim 1; communication means for performing data exchange between the mobile robot and the charging station (col. 33, lines 26-38) as claimed in claim 2; the visible recognition data is a print medium glued onto the surface of the charging station (col. 19, lines 38-39 and col. 33, lines 26-30) as required by claim 3; the visible recognition data is formed on a print medium, and a plurality of print media is glued onto the surface of a three-dimensional object (col. 19, lines 38-39) as claimed in claim 4; the visible recognition data is displayed on a screen of a display unit (10) as recited in claim 5; the visible recognition data is displayed on a screen of a display unit (10), and is dynamically used in a manner that prevents the visible recognition data from being merged into the environment of the work space (col. 37, lines 26-31) as recited in claim 6; the visible recognition data is displayed on a screen of a display unit (10) and is changed in response to a range from the mobile robot (col. 38, lines 39-59) as recited in claim 7; the visible recognition data is arranged on an elevated portion of the charging

station (see Figure 5 at element 35) as recited in claim 10; at least one of the charging station and the mobile robot comprises an indicator indicating the condition of a battery (col. 47, lines 53-57) as recited in claim 11; the charging station further comprises transmitter means that transmits at least one of light ray, infrared ray, sound wave, ultrasonic wave, radio wave, and magnetic field (col. 11, lines 29-33 and col. 18, lines 33-36); the mobile robot comprises receiver means for receiving the wave transmitted from the transmitter means, and the calculating means calculates the range and the bearing from the mobile robot to the charging station, based on at least one of the image provided by the image pickup means and data received by the receiver means (col. 33, lines 26-38) as claimed in claim 12; the wave transmitted by the transmitter means is easily discriminated and separated from other signals created within the workspace (col. 37, lines 26-31) as recited in claim 13; the transmitter means transmits at least two signal waves, from among light ray, infrared ray, sound wave, ultrasonic wave, radio wave, and magnetic field, and the receiver means switches the receiver signal in response to the range between the charging station and the mobile robot (col. 11, lines 29-33 and col. 18, lines 33-36) as claimed in claim 15; the transmitter means transmits at least two signal waves that are different in output intensity and frequency component (col. 18, lines 63-66) as claimed in claim 17; the charging station comprises communication means for exchanging data with a device other than the devices of the charging system (col. 11, lines 29-33 and col. 18, lines 33-36) as recited in claim 18; the transmitter means is arranged external to the charging station (col. 11, lines 29-33 and col. 18, lines 33-36) as required by claim 19; teaching the position of the charging

station based on the signal wave from the transmitter after the mobile robot has once placed on the charging station (col. 38, lines 39-59), and searching for the charging station by calculating the range and bearing to the charging station, based on the signal wave from the transmitter, with the mobile robot at any position within the work space (col. 33, lines 30-38) as recited in claim 33; storing beforehand, in a memory of the mobile robot, the position information of the charging station with respect to a reference position set in accordance with the position of the transmitter, and searching for the charging station by calculating the position of the mobile robot with respect to the reference position based on the signal wave from the transmitter with the mobile robot at any position within the workspace, and reading the position information from the memory to calculate the range and the bearing to the charging station (col. 24, lines 15-19 and col. 33, lines 30-38) as claimed in claim 34; the calculating step in which the mobile robot calculates the position thereof with respect to the reference position set in accordance with the position of the transmitter, based on the signal wave from the transmitter, the calculating step in which the charging station calculates the position thereof with respect to the reference position, based on the signal wave from the transmitter, the communication step in which the charging station communicates the position information thereof to the mobile robot, and the searching step in which the mobile robot searches for the charging station by calculating the range and bearing to the charging station through relative relationship between the positional information (col. 24, lines 15-19 and col. 33, lines 30-38) as recited in claim 35.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen et al.

Allen et al. discloses the claimed invention except for the visible recognition data is a combination of colors and patterns as claimed in claim 8, and the visible recognition data being a two-dimensional bar code as recited in claim 9.

Doi et al. teach an object detection apparatus, motion control apparatus and pattern recognition apparatus having visible recognition data being a combination of colors (col. 3, line 57) and patterns (col. 8, lines 61-67) as claimed in claim 8; includes the use of visual recognition data in the form of a second-dimensional bar code (col. 17, lines 48-49) as recited in claim 9.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide visible recognition data being in a combination of colors and patterns as well as a two-dimensional bar code as taught by Doi et al. since Doi et al. states at col. 4, lines 64-65, that such a modification would provide precision of detection that can be increased greatly.

Allowable Subject Matter

Claims 14, 16, 20, and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 37 is allowed.

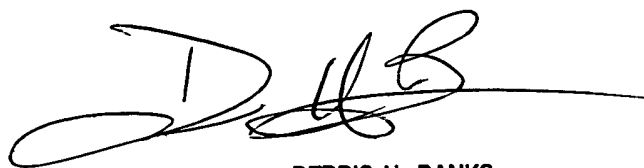
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Urszula M. Cegielnik whose telephone number is 703-306-5806. The examiner can normally be reached on Monday through Friday, from 6:45AM - 3:15PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Derris H. Banks can be reached on 703-308-1745. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9302 for regular communications and 703-872-9303 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to Customer Service at 703-306-5648.

Urszula M. Cegielnik
Assistant Examiner
Art Unit 3712

A handwritten signature in black ink, appearing to read 'DHB', with a long horizontal line extending to the right.

DERRIS H. BANKS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700